REMARKS

The present patent application describes and claims a screw for hard materials having a sawtooth configuration formed by adjacent teeth extending along the spiral path of its thread. [U.S. Pat. Pub. No. US 2006/0024147 A2, Paras. 0026; 0030]

The prior art cited against the application does not show or suggest this feature. Auger, the primary reference, states at column 1, line 14, that its invention is designed for soft materials "matériau tender," rather than for hard materials.

The distinction of the present invention from Auger is that in Auger, the teeth are not continuous and they do not alternate, they are spaced at 180-degree intervals, and the tooth pattern repeats rather than alternates as claimed. In the embodiments of Figs. 7, 8 and 9 of Auger, Auger repeats its pattern at a rate of one single-sided or one double-sided tooth per half turn.

Some confusion has been introduced into the examination by the assertion by the prior Examiner that Applicant only disclosed an axis or centerline for the shaft of the screw and that Applicant did not disclose an axis or centerline for the thread of the screw, which follows a spiral path around the screw shaft.

The prior Examiner's final action was in error in the third indented italicized paragraph on page 2 referring to claim 1, where the Examiner says in brackets:

"[original claim - must refer back to original specification, which must mean the centerline described for the screw longitudinal axis.]"

Applicant will show that this determination has been error all along - that claim 1 did not refer to the "screw axis".

The original Abstract which is part of the disclosure reads as follows:

ABSTRACT (Original)

A screw intended for use on hard masonry or concrete has a thread that constitutes a row of teeth bordering on one another that are offset laterally with respect to the thread's longitudinal axis. The thread has a sawtooth contour. (Our emphasis.)

The axis or centerline of the thread was thus mentioned in the Abstract. The centerline of the thread was specifically mentioned in the original specification if claim 1 is included.

Claim 1, as originally filed herein, read as follows:

"a thread (2), wherein cutting teeth on that side of the thread that faces away from the head are alternately inclined to the left and right of its (ed. note: the thread's) imaginary centerline over their full length."

The preliminary amendment deleted the words "its imaginary" from original claim 1.

On the other hand, the shaft centerline was never "imaginary," it was always illustrated in Fig. 1 and Fig. 3.

In the first Office action, the previous Examiner asked "centerline of what?" whereupon Applicant submitted the drawing amendment showing the "imaginary" centerline of the thread centerline, which is what this passage was referred to in the original claim 1, which is a part of the original disclosure.

This passage from original claim 1 was not speaking of the centerline of the screw shaft, which is mentioned elsewhere in the specification.

The previous Examiner's conclusion (without agreement by the undersigned) was that the centerline of claim 1 was necessarily the centerline of the screw shaft as stated on page 2, section 1, third subparagraph of the final action. This was incorrect and an error of law!

The Examiner's premise was that the original claim 1 language had to find support in the description OR the original claim 1 would be interpreted in view of the only axis or centerline depicted in the drawings.

Claims are part of the original disclosure and they can provide disclosure not found in the detailed description, and the detailed description can be amended to support such material in the original claims. This is what Applicant attempted to do in the prior Amendments to the drawings and description.

"The claims as filed in the original specification are part of the disclosure and therefore, if an application as originally filed contains a claim disclosing material not disclosed in the remainder of the specification, the applicant may amend the specification to include the claimed subject matter." *In re Benno*, 768 F.2d 1340, 226 USPQ 683 (Fed. Cir. 1985). MPEP 2163-06, Para. III.

Thus, the centerline or axis of the thread, which is distinguishable from the centerline or axis of the screw shaft, was a part of the original disclosure and all of the incorporated findings in the Office Action premised on the opposite conclusion are in error, notably pages 4 and 5 of incorporated findings from the prior action.

Applicant is willing, however, in a spirit of compromise and cooperation, to revert to other language in the detailed description, namely at page 6, second full paragraph [U.S. Pat. Pub. No. US 2006/0024147 A2, Para. 0030] which reads:

> "The arrangement of teeth may be seen best in Fig. 5, which depicts a single circuit of the thread, unwound along, for example, the direction indicated by the arrow V shown in Fig. 3, and flattened out. In the top view thereof, the flattened crest of the thread forms a rectangular face 12 whose lateral edges follow the same spiral path followed by the thread 2. The individual teeth are spaced such that the right-hand edge 13 of their face 12 is aligned with the left-hand edge 14 of the face of the neighboring tooth."

Paragraph 0011 of U.S. Pat. Pub. No. US 2006/0024147 A2 provides:

> [0011] Under a further elaboration on the invention, it may be provided that at least one side of the thread, preferably both sides of the thread, have alternating protrusions and notches. Although a side of a thread normally follows a spiral path, i.e., has a smooth surface, in this case, its surface contains notches whose bases are parallel to the remaining portions of that side of the thread, but offset with respect thereto.

Therefore it is proposed to amend claim 1, not to mention the centerline of the thread, but the spiral path of the thread as the teeth proceed in the same direction.

Amended Claim 1 now recites:

"a thread extending for a plurality of turns in a spiral path around the shaft, wherein a series of cutting teeth are formed within one half turn of the thread and along at least one half turn of the thread, and wherein the cutting teeth have equal but opposite sides and also have faces that are alternately and laterally offset to opposite sides of the spiral path of the thread."

New claim 15 is presented to closely follow the description of the teeth in para. 0030 of U.S. Pat. Pub. No. US 2006/0024147 A2 and recites as follows:

"a thread extending for a plurality of turns in a spiral path around the shaft, wherein a series of cutting teeth are formed within one half turn of the thread and for at least one half turn of the thread, wherein the cutting teeth have equal but opposite sides and wherein the cutting teeth are formed along a rectangular face and have edges that follow the spiral path of the thread, with alternating teeth having a right-hand edge of one tooth face aligned with a left-hand edge of a next tooth face along the spiral path of the thread."

Query from the Examiner: The present Office action asks in relation to claim 8, how cutting teeth can be formed along the longitudinal centerline of the thread, when in depending claim 1, the cutting teeth are claims (sic: claimed) as being alternately offset to opposite sides of a longitudinal centerline of the thread.

Answer: If one understands the thread centerline as Applicant illustrated it in Fig. 5 of Applicant's amendment of July 10, 2007, (vertical dashed line) then the cutting teeth abut one another in a straight line (vertical) and the tooth faces are further illustrated as displaced horizontally side-to-side as recited. Because the tooth faces are rectangular, they have a length extent and a width extent.

Claim 8 has now been amended to recite that:
"the cutting teeth are formed in a series with each tooth next to a succeeding tooth along a plurality of turns of the spiral path of the thread."

Support is provided by para. 0013 of U.S. Pat. Pub. No. US 2006/0024147 A2, which provides:

[0013] According to the invention, it may be provided that the thread has a row of laterally offset teeth bordering on one another, where it may be provided that the radial edges (note; edges 11) of the sides of the thread extend all the way down to the screw's shaft (Note: it is understood from the other descriptions that this means the teeth extend down the entire length of the spiral path of the thread).

Since the thread centerline is no longer claimed (a change from original claim 1), a new drawing amendment is proposed in which only the V and the arrow is added in Fig. 3 and only the additional reference numbers are added in Figs. 4 and 5 consistent with the other figures. The illustration of the centerline of the thread has been deleted as required by the Examiner in a spirit of compromise, even though the requirement is believed to be incorrect.

In the Office Action, in rejecting the claims over Auger that the "series is formed by considering multiple half turns to include multiple teeth." This is respectfully believed to be a misreading of the claim language.

As a result of this type of interpretation, the claims have now been amended to clarify that the series of teeth being claimed are <u>within</u> one half turn and that is at least one such

half turn per screw, but in most embodiments the sawtooth thread continues for more than one half turn as now recited in dependent claims 8 and 16.

The point about Auger is that the teeth are not adjacent, abutting or next to each other. They are spaced at 180-degree intervals, and they do not provide alternating tooth faces. In the embodiments of Figs. 7, 8 and 9 of Auger, Auger repeats its pattern at a rate of one single-sided or one double-sided tooth per half turn.

Also in Auger, each pair of teeth is identical to the preceding pair due to the twist of the screw thread, so that the pattern each tooth is repeated in the next half turn rather than alternated. The Auger pattern is a repeating pattern per half turn, rather than alternating teeth within a half turn.

Paragraph 6 of the Office action shows that the current Examiner is reading the alternating language relative to the longitudinal axis of the screw, which is incorrect in view of the old claims or the newly amended claims.

With respect to the angles on the thread recited in claims 11 and 12, these claims provide an overall concave slope with a wider base runout and a steeper slope near the tooth face, much like a ski hill as seen in Fig. 4 of the present application. Auger provides a slightly convex shape to the side of its tooth and Applicant does not under the reading of the angles on Auger in the Office action.

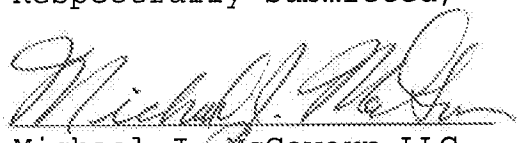
Claims 11 and 12 were rejected over Auger in view of Leithold. Leithold does show a similar tooth profile in a sectional view, however, the teeth aren't integral, and in a top view, they are elliptical and spaced apart along the spiral path, thus neither Auger, nor Leithold in combination with Auger, show a series of sawteeth with faces as recited in the claims and having this side slope profile as well.

The other prior art rejections are all based on Auger as the base reference and a misunderstanding of the claim language. Since the understanding of Auger in view of claim 1 has been incorrect or hypertechnical, and since the claims have been clarified, reconsideration of all of the rejections as being based on these premises is respectfully requested.

CONCLUSION

In view of the amendment and remarks, reconsideration of the application is respectfully requested. Claims 1-9 and 11-16 are now pending and a Notice of Allowance for these claims is respectfully requested.

Respectfully submitted,

By: 

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